

VIDEO MIX PROGRAM GUIDEBackground of the Invention

5 This invention relates generally to
interactive video communications and more particularly
concerns viewer controlled channel programming guide
displays.

10 Programming guide information is presently
displayed to the home TV viewer in a non-interactive
scroll on a single channel dedicated to programming
guide information.

15 When the home viewer selects the programming
guide channel, viewing of the channel previously
selected is interrupted. While the viewer executes
best judgment to when to make the change, key portions
of the program on the previously selected channel may
be missed. This is especially probable in cases of
live programming. It is also especially irritating to
the viewers not in possession of the controller.

20 It is, therefore, an object of this invention
to provide a process and in-home scrolling hardware by
which a home viewer may interactively control a channel
programming guide. Another object of this invention is

to provide a process and in-home scrolling hardware in which the scroll can be simultaneously superimposed on and displayed with the programming of any channel accessible to the home viewer. Another object of this invention is to provide a process and in-home scrolling hardware by which a home viewer may control the comparative weight of the programming guide or superimposed signal in relation to the basic programming signal over which it is superimposed.

10 Summary of the Invention

In accordance with the invention, a system interactively controlled by a TV viewer remote control transmitter displays a scroll program guide superimposed on the normal programming displayed on any channel accessible to the viewer's display screen. A tuner receives TV radio frequency or optical transmission signals in a plurality of cable channels and passes a viewer usable signal of any selected one of the channels to a signal combiner. A computer receives any of a plurality of control signals from the TV viewer remote control transmitter. It also controls the tuner to pass the viewer usable signal of any selected channel in response to one of the control signals from the TV viewer remote control transmitter. It also receives and stores a scroll input picture image signal containing local program guide data and generates a scroll output picture image signal consisting of at least a portion of the scroll input picture image signal. The signal combiner combines the viewer usable signal of any selected channel from the

tuner with the output picture image signal from the computer to provide a display signal with the program guide display superimposed over the channel programming display for input to the viewer's display screen. The
5 computer is responsive to a control signal from the remote to change the weight of the superimposed signal in relation to the base or normal programming signal.

Brief Description of the Drawings

Other objects and advantages of the invention
10 will become apparent upon reading the following detailed description and upon reference to the drawings in which:

FIG. 1 is a block diagram illustrating a preferred embodiment of the hardware of the interactive
15 scrolling program guide;

FIG. 2 is a flow chart illustrating the basic process and options of the video mix capability of the interactive scrolling program guide;

FIG. 3 is a representation of an interactive
20 scrolling program guide menu display;

FIG. 4 is a representation of an interactive scrolling program guide display in a video mix mode;

FIG. 5 is a representation of the interactive scrolling program guide display in a solid or one
25 hundred percent programming guide condition relative to the base signal;

FIG. 6 is a representation of the interactive scrolling program guide display in a ninety percent
30 programming guide condition relative to the base signal;

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FIG. 7 is a representation of the interactive scrolling program guide display in an eighty percent programming guide condition relative to the base signal;

5 FIG. 8 is a representation of the interactive scrolling program guide display in a seventy percent programming guide condition relative to the base signal; and

10 FIG. 9 is a representation of the interactive scrolling program guide display in a sixty percent programming guide condition relative to the base signal.

20 While the invention will be described in connection with a preferred embodiment and process, it will be understood that it is not intended to limit the invention to that embodiment or process. On the contrary, it is intended to cover all alternatives, modifications and equivalents as may be included within the spirit and scope of the invention as defined by the appended claims.

Detailed Description of the Invention

Turning first to FIG. 1, the components of the interactive scroll program guide are illustrated. A computer 11 having a command information receiver, preferably an infrared or radio frequency receiver 13, provides a control signal 15 to a tuner 17 and a picture image signal 19 to a digital video board 21. The tuner 17 converts or demodulates radio frequencies or optical transmissions to a signal usable by the viewer to output a signal 23 selected from a plurality

of signals 25 input to the tuner 17 from the cable source (not shown), typically frequency division multiplexed video, audio and data signals transmitted via a coaxial cable, over-the-air radio frequencies or
5 fiber optics. The digital video board 21 converts digital data into a video signal. The tuner output or base programming signal 23 has superimposed thereon a scroll information picture image signal 27 from the digital video board 21 in a genlock signal combiner or
10 overlayer 29. The combined scroll and TV picture signal 31 is then displayed on a video signal display device such as the display screen 33 of the viewer's television. The combiner 29 permits the viewer to select the weight of the scroll information picture
15 signal 27 in relation to the base programming signal 23. The viewer sends commands to the receiver 13 to control the operation of the computer 11 by the use of a remote control transmitter, preferably an infrared or radio frequency transmitter 35. The computer 11 is
20 based on microprocessor and may utilize random access (RAM) and/or read only (ROM) memory. The software necessary to operate the microprocessor may be embedded in the device or downloaded via the cable system to the device.

25 The above described interactive scroll program guide components operate in response to the control of the computer 11. As shown in FIG. 2, while the home viewer is watching programming presented on his display 33 in response to the tuner 17 feeding any
30 basic program signal 23 from the input selections 25 to the genlock combiner 29, the viewer may opt to

simultaneously view the programming guide scroll
available to the combiner 29 from the computer 11
through the digital video board 21. The viewer simply
presses a predetermined key on the remote 35 to select
5 the program guide display as is illustrated in FIG. 3.
As shown in FIG. 3, the program guide nomenclature
(Prgm Guide) will appear on the screen between arrows
indicating upward or downward menu access to the
possible choices in the program guide routine. By use
10 of the up and down arrows on the controller 35, the
program guide menu can be manipulated to the "video
mix" condition, illustrated as step 51 in the routine
of FIG. 2. The visual appearance of the viewer's
display 33 in the "video mix" condition is illustrated
15 in FIG. 4. Upon "user selection of video mix" 51, the
computer 11 routine inquires as to whether or not there
has been a key pressed 53 requesting that the weight of
the program guide signal 27 be changed in relation to
the basic programming signal 23. If the answer to this
20 inquiry is "NO", routing proceeds through a path 55 to
continue the "key pressed" inquiry 53. If the response
to the "key pressed" inquiry 53 is "YES", the routine
continues to a "user exit" inquiry 57. If the viewer
has opted to exit the video mix routine, a "YES"
25 response to the "user exit" inquiry 57 will result in a
"return to the previous menu" 59. If, however, the
response to the "user exit inquiry" 57 is "NO", the
routine continues to a new mix selection inquiry 61.
If the response to the "new mix selection" inquiry 61
30 is "NO", the routine returns via the route 55 to the
original "key pressed" inquiry 53. If the answer to

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the "new mix selection" inquiry 61 is "YES", the routine proceeds through the calculate hardware parameters step" 63 and the "set hardware to new level" step 65, at which point the genlock combiner 29

5 automatically performs these functions to establish the weight of the program guide signal 27 superimposed by the genlock combiner 29 over the basic programming signal 23. When the hardware is set to its new level 65, the routine continues through the path 55 to the

10 "key pressed" inquiry 53 to determine whether the viewer has again selected a different percentage of signal mix.

FIGS. 5 through 9 illustrate the solid or one hundred percent video mix, ninety percent video mix,

15 eighty percent video mix, seventy percent video mix and sixty percent video mix, respectively, the percentage indicating the weight the programming guide signal 27 superimposed on the basic programming signal 23.

If the video mix routine is exited and later

20 reselected, the weight of the programming guide signal 27 will automatically be the weight last opted by the viewer.

Thus, each individual viewer will be provided with a scroll program guide in which the home viewer

25 can interactively determine whether the program guide scroll should be displayed and, if so, its weight relative to the basic program data.

Thus, it is apparent that there has been provided, in accordance with the invention, a video mix

30 program guide that fully satisfies the objects, aims and advantages set forth above. While the invention

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